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## CVD Screening Protocol for History of Hypertension in Pregnancy

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## **Executive Summary**

### **Introduction of the Problem**

Hypertension in pregnancy has been associated with later life cardiovascular disease (CVD), which is one of the leading causes of death in women. The American College of Obstetricians and Gynecologists (ACOG) and the American Heart Association (AHA) published updated guidelines in 2011 and 2013, respectively, with recommendations that women with hypertension during pregnancy should receive annual blood pressure assessment, weight check, and lipid screening; remain in the optimal body mass index (BMI) range; and obtain education about their future risks for CVD.

A large Midwestern primary care clinic was lacking a process for identifying patients who met this criterion to prompt proper screening and patient education.

### **Literature Review**

Upon the completion of an extensive review of selected literature, 19 evidence based works supported the correlation between hypertension in pregnancy and risk of CVD disease later in life. The available literature highlights the importance of appropriate screening and lifelong monitoring of cardiovascular risk factors in women diagnosed with a hypertensive condition in pregnancy. Among the reviewed literature, two findings of significance were the guidelines for hypertension in pregnancy presented by ACOG and the AHA's official updated guidelines for prevention of CVD in women (Mosca et al., 2011). Three systematic reviews supported ACOG and AHA's updated guidelines. Together, the two updated guidelines formed the basis for the project.

Studies that were a lower level of evidence were identified, which included cohort and case control studies, further supporting ACOG and AHA's new recommendations. Many authors

sought to differentiate the risk of CVD based on severity of illness. Others focused on hypertension in pregnancy. Specific studies concentrated solely on preeclampsia and the specific risks it poses. Study findings included strong correlation between hypertension and CVD, but also other chronic conditions, such as type II Diabetes Mellitus.

## **Project Methods**

The goal of this project was to improve the compliance of appropriate screening and prevention of CVD based on the American Heart Association's updated guidelines for women with a history of hypertension in pregnancy.

The objectives of the project were to provide an evidence-based protocol for the prevention of CVD in women with a history of hypertension in pregnancy, to streamline the ordering process for providers to increase compliance in ordering annual lipid panels for women with a history of hypertension in pregnancy and to properly educate women with a history of hypertension in pregnancy on the risk factors for CVD.

With the assistance of the nursing informatics team, a change was made within the Electronic Health Record (EHR) to identify the patients who had a history of hypertension in pregnancy. Providers were prompted to comply with current guidelines, which included ordering proper screenings as well as providing educational information to the patient. The small practice change for the providers practicing at this Midwestern clinic was implemented with the intent to improve compliance with current evidence-based recommendations of which the providers were unaware.

The project setting was a large, Midwest multispecialty healthcare organization. The sample population included 29 Advanced Practice Registered Nurses (APRN), Physician Assistants (PA), and Physicians working within the organization. Education was presented via a

PowerPoint presentation to the participating providers in September 2019 at a department meeting.

The patients with a history of hypertensive disorder in pregnancy at the clinic for their annual exam were identified and flagged in the EHR and included in the project. When the provider checked the box indicating a history of hypertension in pregnancy within the annual exam template, the information auto populated into the patient's note. Next, the provider assessed the individual needs of the patient in regards to the recommended screenings. If the patient had not had a lipid panel within the last year, the test was ordered. Every patient was to receive an educational handout, which was documented in the follow up instruction section of the annual note. Data was collected for the first four months of project implementation, October through January, and 28 patients were included for data analysis.

An application was submitted to the Institutional Review Board (IRB) of Southern Illinois University Edwardsville for Research with Human Subjects. Exempt review took place and IRB granted approval on 4/22/2019.

## **Evaluation**

The original project design including data collection on all annual exams for the project's timeframe, however, this was not completed. Project members, along with SIUE's program director filed a requested letter for extended access to the clinic's EHR, which was denied by the clinic's privacy department. Data collection was dependent on and provided by the clinic's Quality and Data Analyst Registered Nurse as an alternative to student data collection.

There were three major areas evaluated including provider participation in the practice change, number of patients included in regards to the total number of annual exams completed each month and of those included, which patients had documented compliance with all aspects of

the project change. Evaluation of provider participation was completed by looking at the total number of providers educated on the practice change and comparing that to the total number of providers who used the practice change. PowerPoint education was provided to a total of 29 women's health providers and a follow up email was sent to each provider one week later. Only five providers documented and used the practice change as educated. Less than 20% of those educated participated. With such a low participation percentage, the data analysis of the other two areas of focus were insignificant.

The second area of focus was the number of patients included in regards to the total number of annual exams completed each month. A total of 7,727 annual examinations were completed in October 2019 through January 2020. From the total annual exams, only 28 patients had correct documentation by the provider, having the hypertension in pregnancy box checked on the annual note, and were included in the data selected. It is known that hypertension in pregnancy complicates about two to three percent of pregnancies in the United States. With this in mind as well as the minimal participation of the providers in the project, it can be inferred that many of the patients who should have met the criteria for the education and screening were not properly documented on and therefore not included in the project.

Lastly, the number of patients documented appropriately as having a history of hypertension in pregnancy were looked at to see whether they also had documented compliance with all aspects of the project change. Specifically, documented education provided and either a current lipid panel completed within the last year or an order for a lipid panel to be completed were considered. Of the 28 patients, 23 had documented education completed and 25 had an annual lipid panel completed or ordered. A total of 21 patients met both criteria. Therefore, the

results from the given data set show that 75% of the sample reviewed were compliant in following the newly presented guidelines.

Several limitations were identified throughout the process of the project. After approximately one year of project development, the original stakeholder was promoted within the clinic; therefore, a new stakeholder was assigned. Time investment and student involvement were altered from the original direction of the project. Student project members were denied access to assist in development of the educational handout and were not given an opportunity to view the handout prior to implementation. Students were also denied the ability to partake in the development and presentation of the provider education for the practice change.

There was limited participation from the providers in using the practice change presented. Of 29 providers, only five providers had documented use of the practice change. Due to limited provider participation, the number of patients screened and educated was nominal. Findings are not generalizable and not representative of the possible findings. If provider participation would have been adequate there may have been different findings. The criteria for data retrieval was specific to two items selected within the annual exam documentation. If the provider discussed or documented elsewhere within the EHR, there was no method to retrieve that documentation for analysis. This could directly contribute to the limited number of patients included in the data analysis.

### **Impact on Practice**

The impact at the clinical site was nominal as many of the providers chose not to use the new information provided. The five providers that did use the information clicked four boxes within the EHR, the nurse provided the handout to the patient, and the education was delivered by the provider. The length of time it would take the provider to implement this information

would be minimal. The predicted long-term impact of the project for the practice could be positive if the providers would be required to implement the new information. Patients who have a history of hypertension would gain knowledge about the risk factors and the importance of necessary testing and monitoring to avoid future complications.

Moving forward with this project we would recommend the education be presented to the providers individually with the discussion about the importance of prevention. The providers need to be accountable, and clear expectations defined for documenting and discussing the information properly within the EHR should be set. With accountability and clear expectations defined, the providers would have a greater desire and investment to provide and document the information.

## **Conclusions**

Unfortunately, the final outcomes for this project were not as impactful as expected. Less than 20% of the providers successfully documented the implementation correctly and implemented the new education. This led to a small number of patients receiving the education and appropriate screenings. Each individual patient educated and screened appropriately is a success. The project as a whole may not have been as impactful as expected, however for the patients who did benefit and learn from their involvement in the project, it may assist in preventing future complications associated with CVD.

In the future, we hope the clinic will continue to strive for 100% compliance from every provider to successfully identify and deliver education to the patients with the necessary testing and screenings to avoid future risks of cardiovascular disease. The clinic will need to develop an auditing tool and provide monthly feedback to providers who do not successfully implement the

project. The feedback will need to include education to the provider for successful implementation in the future.

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